

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Simonson et al.	Art Unit	: 2174
Serial No.	: 10/698,804	Examiner	: Andrey Belousov
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Title	: TABULAR DATA SORTING AND DISPLAY		

Mail Stop Appeal Brief - Patents

Commissioner for Patents

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BRIEF ON APPEAL

Applicant herewith files this brief on appeal under 37 C.F.R. § 41.37, thereby perfecting the Notice of Appeal, which was filed with the United States Patent and Trademark Office on October 19, 2011.

(1) Real Party in Interest

The real party of interest is Adobe Systems Incorporated, the assignee of the pending application.

(2) Related Appeals and Interferences

There are no known related appeals or interferences.

(3) Status of Claims

Claims 1-15, 17-23, 32-42, and 44-52 are rejected and are appealed herein. Claim 16 is objected to as being dependent from a rejected base claim, but would be allowable if rewritten in independent form including the base claim and any intervening claims.

(4) Status of Amendments

An amendment to claims 38 and 48 was submitted on May 16, 2012.

(5) Summary of Claimed Subject Matter

Claims 1, 20, 23, 32, 37-39, 42, 44, 47-49, and 52 are independent.

Independent claim 1 recites a computer program product tangibly embodied on a machine readable storage device (*see, e.g.*, specification, page 9, lines 7-10), the product comprising

instructions operable to cause data processing apparatus to: display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receive from the user one input gesture selecting a marker, where the selected marker remains within the table of data (*see, e.g.*, specification, page 1, lines 22-23; page 4, line 15 to page 5, line 20; page 7, lines 23-27); establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 30 to page 5, line 21); sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Dependent claim 11 recites the product of claim 1, further comprising instructions to: determine whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key, change a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key, establish the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, and maintain the positions and the sort directions of the remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 25 to page 5, line 21).

Independent claim 20 recites a computer program product tangibly embodied on a machine readable storage device (*see, e.g.*, specification, page 9, lines 7-10) for interacting with a user, the product comprising instructions operable to cause data processing apparatus to: display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receive from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display (*see, e.g.*, specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2); establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-25; page 4, line 30 to page 5, line 21); sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 23 recites a computer program product tangibly embodied on a machine readable storage device (*see, e.g.*, specification, page 9, lines 7-10) for interacting with a user, the product comprising instructions operable to cause data processing apparatus to: display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a

row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receive from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display (*see, e.g.*, specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2); establish the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of the remaining sort keys in the sort key order including a most significant sort key and a least significant sort key (*see, e.g.*, specification, page 2, line 23-page 3, line 3; page 8, line 26 to page 9, line 2); sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 32 recites a method comprising: displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receiving from the user one input gesture selecting a marker, where the selected marker remains within the table of data and, in response to the input gesture selecting the marker, establishing the row or column associated with the user-selected

marker as the most significant sort key in the sort key order including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order data (*see, e.g.*, specification, page 1, lines 22-30; page 4, line 15 to page 5, line 21; page 7, lines 23-27); sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Dependent claim 36 recites the method of claim 32, further comprising: receiving from the user an input gesture deselecting a marker associated with a sort key (*see, e.g.*, specification, page 2, lines 20-21); and removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order (*see, e.g.*, specification, page 2, lines 21-23).

Independent claim 37 recites a method comprising: displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receiving from one user an input gesture selecting a marker (*see, e.g.*, specification, page 1, lines 22-23; page 4, line 15 to page 5, line 20; page 7, lines 23-27); determining whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key in the sort key order, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key in the sort key order, establishing the row or column

associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 25 to page 5, line 21); sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 38 recites a method comprising: displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key being a row or a column of the table, each sort key having a position in the sort key order, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one (*see, e.g.*, specification, page 1, lines 18-22; page 2, lines 11-19; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 5, lines 25-31); receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order (*see, e.g.*, specification, page 1, lines 22-23; page 4, line 15 to page 5, line 20; page 5, line 25 to page 6, line 6; page 7, lines 23-27); determining whether the table of data has the predetermined number of sort keys in the sort key order, and if it is determined that the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if it is determined that the table of data has fewer than the predetermined number of

sort keys in the sort key order, adding the row or column associated with the user selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 30 to page 5, line 21; page 5, lines 25 to page 6, line 6); sorting the table of data according to the two or more sort keys in the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 39 recites a method comprising: displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display (*see, e.g.*, specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2); establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-25; page 4, line 30 to page 5, line 21); sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the

plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 42 recites a method comprising: displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19); receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display (*see, e.g.*, specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2); establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order including a most significant sort key and a least significant sort key (*see, e.g.*, specification, page 2, line 23-page 3, line 3; page 8, line 26 to page 9, line 2); sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24); and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2).

Independent claim 44 recites an apparatus comprising: means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a

plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 10, lines 7-14); means for receiving from the user one input gesture selecting a marker, where the selected marker remains within the table of data (*see, e.g.*, specification, page 1, lines 22-23; page 4, line 15 to page 5, line 20; page 7, lines 23-27; page 10, lines 7-14); means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 30 to page 5, line 21; page 9, line 5 to page 10, line 6); means for sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24; page 8, lines 1-4; page 9, line 5 to page 10, line 6); and means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2; page 10, lines 7-14).

Independent claim 47 recites an apparatus comprising: means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 10, lines 7-14); means for receiving from the user one input gesture selecting a marker (*see, e.g.*, specification, page 1, lines 22-23; page 3, lines 23-27; page 4, line 1 to page 5, line 20; page 7, lines 23-27; page 10, lines 7-

14); means for determining whether the user-selected marker is associated with the most significant sort key, and if the user-selected marker is associated with the most significant sort key, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant sort key, establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (see, e.g., specification, page 1, lines 23-30; page 4, line 25 to page 5, line 21; page 9, line 5 to page 10, line 6); means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture *see, e.g.*, specification, page 1, line 25; page 5, lines 22-24; page 8, lines 1-4; page 9, line 5 to page 10, line 6); and means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2; page 10, lines 7-14).

Independent claim 48 recites an apparatus comprising: means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key having a position in the sort key order, each sort key being a row or a column of the table, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 10, lines 7-14); means for receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order (*see, e.g.*, specification, page 1, lines 22-23; page 4, line 15 to page 5, line 20; page 5, line 25 to page 6, line 6; page 7, lines 23-27; page 10, lines 7-14); means for determining whether the table of data has the predetermined number of sort keys in the sort key order, and if

it is determined that the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if it is determined that the table of data has fewer than the predetermined number of sort keys in the sort key order, adding the row or column associated with the user-selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order (*see, e.g.*, specification, page 1, lines 23-30; page 4, line 30 to page 5, line 21; page 5, lines 25 to page 6, line 6; page 9, line 5 to page 10, line 6); means for sorting the table of data according to the two or more sort keys in the sort key order, and the sort key directions in response to the input gesture (*see, e.g.*, specification, page 1, line 25; page 5, lines 22-24; page 8, lines 1-4; page 9, line 5 to page 10, line 6); and means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2 page 10, lines 7-14).

Independent claim 49 recites an apparatus comprising: means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g.*, specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 10, lines 7-14); means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display (*see, e.g.*, specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2; page 10, lines 7-14); means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input

gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g., specification, specification, page 1, lines 23-30; page 4, line 30 to page 5, line 21; page 9, line 5 to page 10, line 6*); means for sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g., specification, page 1, line 25; page 5, lines 22-24; page 8, lines 1-4; page 9, line 5 to page 10, line 6*); and means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g., specification, page 1, line 26; page 5, line 2; page 10, lines 7-14*).

Independent claim 52 recites an apparatus comprising: means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order (*see, e.g., specification, page 1, lines 18-22; page 3, lines 23-27; page 4, lines 1-14 and 16-19; page 10, lines 7-14*); means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display (*see, e.g., specification, page 1, lines 25-30 and page 8, line 26 to page 9, line 2 page 10, lines 7-14*); means for establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order (*see, e.g., specification, page 2, line 23-page 3, line 3; page 8, line 26 to page 9, line 2; page 9, line 5 to page 10, line 6*); means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture (*see, e.g., specification, page 1, line 25; page 5, lines 22-24; page*

8, lines 1-4; page 9, line 5 to page 10, line 6); and means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted (*see, e.g.*, specification, page 1, line 26; page 5, line 2; page 10, lines 7-14).

(6) Grounds of Rejection to be Reviewed on Appeal

Whether claims 38 and 48 are indefinite under 35 U.S.C. § 112, second paragraph.

Whether claims 1-4, 6, 7, 10-18, 20-23, 32-42, and 44-52 are anticipated under 35 U.S.C. § 102(b) by Microsoft Outlook 2000 ("Outlook 2000").

Whether claims 5 and 19 are unpatentable under 35 U.S.C. § 103(a) over Outlook 2000.

Whether claims 8 and 9 are unpatentable under 35 U.S.C. § 103(a) over Outlook 2000 in view of U.S. Patent No. 5,704,051 ("Lane").

(7) Argument

I. The Board Should Reverse The Rejections of Claims 1-4, 6, 7, 10-18, 20-23, 32-42, and 44-52 As Anticipated Under 35 U.S.C. § 102(a)

In order to reject a claim under 35 U.S.C. § 102 as anticipated, the reference must teach every element of the claim. In particular as set forth in MPEP § 2131:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). (MPEP § 2131).

The applicant submits that the examiner has failed to establish a *prima facie* case for anticipation under § 102(a). In particular, the applicant submits that the examiner has failed to establish that the references expressly or impliedly suggest the claimed invention as required by MPEP § 702.02(j).

- a. Outlook 2000 does not disclose: "establish a row or column associated with a user-selected marker as the most significant key" where "the selected marker remains within the table of data."*

Claim 1

Claim 1 recites displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order.

Claim 1 further recites receiving from the user one input gesture selecting a marker, where the selected marker remains within the table of data and establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of the two or more remaining sort keys in the sort key order.

The examiner states that Outlook 2000 teaches establishing a row or column associated with a user-selected marker as the most significant key at FIG. 9. In particular, the examiner states that FIG. 9 shows “the sort key order as it is after the drag is performed, now the type marker is at the top, while name and size is pushed down the chain” (Office Action, page 4). Additionally, the examiner identified a drag operation of a marker as the claimed input gesture selecting a marker “selection gesture is performed by clicking and dragging one of the possible markers (e.g. “Type” marker)” (Office Action, page 4). The applicant respectfully disagrees.

The cited figures of Outlook 2000 show a drag operation that establishes a sort key at the top of the sort order. However, this is responsive to dragging the marker to the top location and not in response to the user selection of the marker. Selecting the marker without dragging does nothing. Claim 1 recites “establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker” (emphasis added). Furthermore, claim 1 recites that the “selected marker remains within the table of data” and that the table of data has a plurality of rows or a plurality of columns.

The applicant respectfully submits that the cited portions of Outlook 2000 do not teach establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker.

Therefore, the applicant respectfully submits that the section 102 rejection of claim 1 should be reversed and claim 1 should be allowed. Claims 2-19 depend from claim 1 and are allowable for the same reasons.

Claims 32 and 44

Claims 32 and 44 include features corresponding to those of claim 1 and were rejected for the same reasons.

The applicant respectfully submits that the cited portions of Outlook 2000 do not disclose establish a row or column associated with a user-selected marker as the most significant key where the selected marker remains within the table of data, for at least the same reasons set forth above with respect to claim 1. Therefore, the applicant submits that claims 32 and 44 are in condition for allowance. Claims 33-36 and 45-46, which depend from claims 32 and 44, respectively, are also in condition for allowance.

b. Outlook 2000 does not disclose: "maintain the positions and the sort directions of two or more remaining sort keys in the sort key order."

Claim 1 also recites instructions to maintain the positions and the sort directions of two or more remaining sort keys in the sort key order.

The examiner states that Outlook 2000 shows maintaining the sort directions of the remaining sort keys because the examiner generated figure shows each to be in ascending direction. However, the applicant respectfully asserts that the examiner's artificial figure has only shown that the sort keys have a default sort direction.

In the examiner's Response to Arguments, the examiner states that "[r]egardless of whether the sort directions are maintained as a result of default direction being maintained, or otherwise, it is sufficient that at least in one scenario the sort directions are maintained, so as to read upon the claims" (Office Action, page 12). The examiner further states that "Outlooks [sic]

discloses at least on case where the direction are maintained (regardless by what logic)” (Office Action, page 12).

The applicant respectfully disagrees. The applicant respectfully submits that this is not an accurate statement of the requirements to reject a claim feature. Moreover, the applicant respectfully submits that the examiner contradicts the requirements of the claim by indicating that the reason for maintaining the sort direction is immaterial.

The claim affirmatively requires that “establishing the row or column as the most significant sort key includes maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order” (emphasis added). Thus, the maintaining is an action required in establishing the row or column as the most significant sort key.

To reject the claim based on Outlook 2000, the applicant respectfully submits that the examiner must show a teaching in Outlook 2000 that the *act of maintaining* the sort direction is tied to establishing the row or column as the most significant sort key and not merely coincidental to some specific cases. In other words, the “logic” *does* matter since the claim requires an action to be performed not simply the result. Since the examiner has not provided any evidence that the sort direction is maintained as part of establishing a particular sort key order, the examiner has failed to establish a *prima facie* case for rejecting this requirement of claim 1.

Therefore, the applicant respectfully submits that the section 102 rejection of claim 1 should be reversed for this additional reason. Claims 2-19 depend from claim 1 and are allowable for the same reasons.

Claims 32 and 44

Claims 32 and 44 include features corresponding to those of claim 1 and were rejected for the same reasons.

The applicant respectfully submits that the cited portions of Outlook 2000 do not disclose maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order, for at least the reasons set forth above with respect to claim 1. The applicant respectfully submits that claims 32 and 44, as well as claims 33-36 and 45-46, which depend from claims 32 and 44, respectively, are in condition for allowance.

Claims 20, 39, and 49

Claims 20, 39, and 49 each recite maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order and were rejected for the same reasons as claim 1.

Therefore, the applicant respectfully submits that claims 20, 39, and 49 are allowable for the same reasons as set forth above with respect to claim 1. Furthermore, claims 21-22, 40-41, and 50-51, which depend from claims 20, 39, and 49, respectively, are also allowable.

- c. *Outlook 2000 does not disclose: "sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture" and "display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted."*

Claim 1 further recites instructions to sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture and display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the *same* plurality of rows or the plurality of columns where content of the table of data has been sorted.

The examiner states that Outlook 2000 sorts the table of data, relying on the examiner's generated figures 8-9 as showing the table sorted by type, name, and size. The applicant respectfully disagrees. The applicant respectfully submits that moving markers for columns from the table to the header portion fundamentally alters the table. In particular, the columns associated with the type, name, and size markers no longer exist in the table (i.e., there no longer is a type column, a name column, or a size column in the table). While the data is sorted according to these criteria, it is very different from the original table of data as evidenced by the nested entries in FIGS. 8 and 9. Claim 1, however, recites that markers are associated with a row or column of the table and that the sorting includes sorting the rows or columns of the table. Moreover, claim 1 recites that displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table

of data has been sorted. Therefore, the applicant respectfully submits that the cited portions do not teach or suggest a sorting of the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture.

In the examiner's Response to Arguments, the examiner states that "resulting data from that sorted table can be displayed in many ways, including the format as disclosed in Fig. 8 and 9" (Office Action, page 13). The applicant respectfully disagrees.

Claim 1 recites displaying the table of data; thus, the examiner's interpretation of the claimed table as logically related data stored in a database is not consistent with the plain language of the claim. In particular, "the table of data" clearly references the antecedent "table of data" and should be consistently interpreted. The applicant respectfully submits that whether some database can be sorted is not relevant to the plain language of the claim. Still, in order to expedite prosecution, the applicant had previously amended the claim to clarify that the table of data includes a plurality of rows or a plurality of columns and that displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted. The data shown in FIGS. 8 and 9 of Outlook 2000 do not satisfy the requirements of the claimed sorted table of data.

For the additional foregoing reasons, the applicant respectfully submits that claim 1, as amended, is allowable over Outlook 2000. Claims 2-19 depend from claim 1 and are allowable for the same reasons.

Claims 32 and 44

Claims 32 and 44 recite sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

For at least the reasons set forth above with respect to claim 1, the applicant respectfully submits that claims 32 and 44, as well as claims 33-36 and 45-46, which depend from claims 32 and 44, respectively, are in condition for allowance.

Claims 20, 39, and 49

Claims 20, 39, and 49 each recite sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture, and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted and were rejected for the same reasons as claim 1.

Therefore, the applicant respectfully submits that claims 20, 39, and 49 are allowable for the same reasons as set forth above with respect to claim 1. Furthermore, claims 21-22, 40-41, and 50-51, which depend from claims 20, 39, and 49, respectively, are also allowable.

Claims 23, 42, and 52

Claims 23, 42, and 52 each recite sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

Therefore, the applicant respectfully submits that claims 23, 42, and 52 are allowable for the same reasons as set forth above with respect to claim 1.

d. Outlook 2000 does not disclose: "determine whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key, change a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key, establish the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, and maintain the positions and the sort directions of the remaining sort keys in the sort key order."

Claim 11

Claim 11 recites determining whether the user-selected marker is associated with the most significant key. If the user-selected marker is associated with the most significant key, a sort direction of the most significant key is changed. If the user-selected marker is not associated with the most significant key, the row or column associated with the user-selected marker is established as the most significant sort key responsive to the user selection of the marker and the positions and the sort directions of the remaining sort keys in the sort key order are maintained.

The examiner states that Outlook 2000 teaches that if the user-selected marker is not associated with the most significant key, the row or column associated with the user-selected marker is established as the most significant sort key because Outlook 2000 includes instructions that allow a user to drag a sort key to the top of the order at any time. Applicant respectfully submits that this is contrary to the claim language, which recites a determination that is performed as to whether a user selected marker is the most significant key or not. If not, the key is established as the most significant key. There is no further user action required to drag the key to the top of the order. To the contrary, the selection of the marker is all that is required.

Additionally, the examiner's Response to Arguments fails to address the applicant's foregoing arguments with respect to claim 11. "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it" (MPEP § 707.07(f)). Therefore, the applicant respectfully submits that the examiner has failed to properly respond to the applicant's previous arguments as required.

The applicant respectfully submits that claim 11 is in condition for allowance for at least this additional reason.

Claims 37 and 47

Claims 37 and 47 recite determining whether the user-selected marker is associated with the most significant key in the sort key order and if the user-selected marker is associated with the most significant key in the sort key order, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key, establishing the row or column associated with the user-selected marker as the most significant sort key

responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order.

For at least the reasons set forth above with respect to claim 11, the applicant respectfully submits that claims 37 and 47 are in condition for allowance.

- e. Outlook 2000 does not disclose: "receiving from the user an input gesture deselecting a marker associated with a sort key; and removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order."*

Claim 36

Claim 36 recites receiving from the user an input gesture deselecting a marker associated with a sort key; and removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

The examiner rejects claims 36 as anticipated by Outlook 2000. However, the examiner does not identify any portions of Outlook 2000 as teaching the features of claim 36. Moreover, the applicant respectfully submits that the portions of Outlook 2000 as relied upon by the examiner do not teach receiving from the user an input gesture deselecting a marker associated with a sort key; and removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order. Therefore, the applicant respectfully submits that claim 36 is allowable for this additional reason.

II. The Board Should Reverse The Rejections of Claims 38 and 48 Under 35 U.S.C. § 112, second paragraph

Claims 38 and 48 were rejected as being indefinite. In particular, the examiner stated that the limitations "the sort directions" and "the sort key directions" lacked antecedent basis. The

applicant has amended claims 38 and 48 to correct minor typographical errors in an amendment filed before this appeal brief pursuant to 37 C.F.R. § 41.33 and MPEP § 1206. The applicant submits that the amended claims satisfy the requirements of section 112 and the rejection should be withdrawn.

III. The Board Should Reverse The Rejections of Claims 5, 8, 9, and 19 As Unpatentable Under 35 U.S.C. § 103(a)

Claims 5, 8, 9, and 19 depend from claim 1. As set forth above, claim 1 is allowable over the cited portions of Outlook 2000. Therefore, the applicant respectfully submits that dependent claims 5, 8, 9, and 19 are also allowable.

The appeal brief fee and five (5) month extension of time fees are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: May 17, 2012

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Appendix of Claims

1. A computer program product tangibly embodied on a machine-readable storage device, the product comprising instructions operable to cause data processing apparatus to:

display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receive from the user one input gesture selecting a marker, where the selected marker remains within the table of data;

establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order;

sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

2. The product of claim 1, wherein the user input gesture is a selecting gesture for selecting the marker.
3. The product of claim 1, wherein the user input gesture comprises a pointing device action on the marker.
4. The product of claim 1, wherein the user input gesture is a mouse click on the marker.
5. The product of claim 1, wherein the user input gesture is a double mouse click on the marker.
6. The product of claim 1, further comprising instructions to:
represent the sort key order visually in the table by displaying the markers with a pattern of distinct visual properties.
7. The product of claim 6, wherein the pattern of distinct visual properties indicates the sort key order.
8. The product of claim 6, wherein the pattern of distinct visual properties comprises a set of distinct colors.
9. The product of claim 6, wherein the instructions to represent the sort key order visually comprise instructions to display the markers that are associated with sort keys with distinct background colors.
10. The product of claim 6, wherein the pattern of distinct visual properties comprises a set of distinct non-textual representations identifying a sequence of each sort key in the sort key order.

11. The product of claim 1, further comprising instructions to:

determine whether the user-selected marker is associated with the most significant key, and if the user-selected marker is associated with the most significant key, change a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key, establish the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, and maintain the positions and the sort directions of the remaining sort keys in the sort key order.

12. The product of claim 1, wherein the user input gesture is a dragging gesture for selecting the marker by dragging the marker to an area on the graphical user interface display.

13. The product of claim 12, wherein the area on the graphical user interface display comprises an icon.

14. The product of claim 12, wherein the area on the graphical user interface display comprises a separate sort key list window.

15. The product of claim 1, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one.

17. The product of claim 1, further comprising instructions to:

receive from the user an input gesture deselecting a marker associated with an intermediate sort key of at least three sort keys; and

remove the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

18. The product of claim 1, wherein the marker is a column header.

19. The product of claim 1, wherein the marker is a row header.

20. A computer program product tangibly embodied on a machine-readable storage device for interacting with a user, the product comprising instructions operable to cause data processing apparatus to:

display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receive from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

establish the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of two or more remaining sort keys in the sort key order;

sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

display the sorted table of data, wherein displaying the sorted table of data includes

displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

21. The product of claim 20, wherein the area of the graphical user interface display is an icon, the product further comprising instructions to:

receive from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

display, in the separate sort key list window on the graphical user interface display, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

22. The product of claim 20, wherein the area of the graphical user interface display is a separate sort key list window, the product further comprising instructions to:

display, in the separate sort key list window, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

23. A computer program product tangibly embodied on a machine-readable storage device for interacting with a user, the product comprising instructions operable to cause data processing apparatus to:

display a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and display a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant

sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receive from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display;

establish the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintain the positions and the sort directions of the remaining sort keys in the sort key order including a most significant sort key and a least significant sort key;

sort the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

display the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

32. A method comprising:

displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receiving from the user one input gesture selecting a marker, where the selected marker remains within the table of data and, in response to the input gesture selecting the marker, establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

33. The method of claim 32, wherein the user input gesture is a selecting gesture for selecting the marker.

34. The method of claim 32, wherein the user input gesture is a dragging gesture for selecting the marker by dragging the marker to an area on the graphical user interface display.

35. The method of claim 32, further comprising:

representing the sort key order visually in the table by displaying the markers with a pattern of distinct visual properties.

36. The method of claim 32, further comprising:

receiving from the user an input gesture deselecting a marker associated with a sort key;
and

removing the sort key associated with the deselected marker from the sort key order
while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

37. A method comprising:

displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receiving from one user an input gesture selecting a marker;

determining whether the user-selected marker is associated with the most significant key,
and if the user-selected marker is associated with the most significant key in the sort key order,

changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant key in the sort key order, establishing the row or column associated with the user-selected marker as the most significant sort key responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

38. A method comprising:

displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key being a row or a column of the table, each sort key having a position in the sort key order, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one;

receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order;

determining whether the table of data has the predetermined number of sort keys in the sort key order, and if it is determined that the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if it is determined that the table of data has fewer than the predetermined number of sort keys in the sort key order, adding the row or column associated with the user-selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order;

sorting the table of data according to the two or more sort keys in the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

39. A method comprising:

displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

40. The method of claim 39, wherein the area of the graphical user interface display is an icon, the method further comprising:

receiving from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

displaying, in the separate sort key list window on the graphical user interface display, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

41. The method of claim 39, wherein the area of the graphical user interface display is a separate sort key list window, the method further comprising:

displaying, in the separate sort key list window, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

42. A method comprising:

displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display;

establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order including a most significant sort key and a least significant sort key;

sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

44. An apparatus comprising:

means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker, where the selected marker remains within the table of data;

means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture selecting the marker and where establishing the row or column as the most significant sort key includes maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

45. The apparatus of claim 44, further comprising:

means for representing the sort key order visually in the table by displaying the markers with a pattern of distinct visual properties.

46. The apparatus of claim 44, further comprising:

means for receiving from the user an input gesture deselecting a marker associated with a sort key; and

means for removing the sort key associated with the deselected marker from the sort key order while maintaining the positions and the sort directions of the remaining sort keys in the sort key order.

47. An apparatus comprising:

means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker;

means for determining whether the user-selected marker is associated with the most significant sort key, and if the user-selected marker is associated with the most significant sort key, changing a sort direction of the most significant key, and if the user-selected marker is not associated with the most significant sort key, establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order responsive to the user selection of the marker, the establishing including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

48. An apparatus comprising:

means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having two or more sort keys having a specified sort key order including a most significant sort key and a least significant sort key, each sort key having a position in the sort key order, each sort key being a row or a column of the table, wherein the number of sort keys in the sort key order for the table of data is limited to a predetermined number greater than one;

means for receiving from the user one input gesture selecting a marker, the user-selected marker being associated with a row or a column of the table that is not associated with a sort key in the sort key order;

means for determining whether the table of data has the predetermined number of sort keys in the sort key order, and if it is determined that the table of data has the predetermined number of sort keys, removing the least significant sort key from the sort key order responsive to the user selection of the marker, adding the row or column associated with the user-selected marker to the sort key order as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order, and if it is determined that the table of data has fewer than the predetermined number of sort keys in the sort key order, adding the row or column associated with the user-selected marker as the most significant sort key, and maintaining the positions and the sort directions of the remaining sort keys in the sort key order;

means for sorting the table of data according to the two or more sort keys in the sort key

order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

49. An apparatus comprising:

means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to another area of the graphical user interface display;

means for establishing the row or column associated with the user-selected marker as the most significant sort key in the sort key order in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the respective rows or columns of the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

50. The apparatus of claim 49, wherein the area of the graphical user interface display is an icon, the apparatus further comprising:

means for receiving from the user an input gesture selecting the icon, the icon being associated with a separate sort key list window; and

means for displaying, in the separate sort key list window on the graphical user interface display, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

51. The apparatus of claim 49, wherein the area of the graphical user interface display is a separate sort key list window, the apparatus further comprising:

means for displaying, in the separate sort key list window, a list of sort keys comprising the one or more sort keys for the table of data having a sort key order including the most significant sort key.

52. An apparatus comprising:

means for displaying a table of data having a plurality of rows or a plurality of columns as an element of a graphical user interface display and for displaying a set of markers, each marker being associated with a row of the table or each marker being associated with a column of the table, the table of data having a plurality of sort keys having a specified sort key order including a most significant sort key, each sort key being a row or each sort key being a column of the table, each sort key having a sort direction, each sort key having a position in the sort key order;

means for receiving from the user one input gesture selecting a marker by dragging the marker from a location associated with a particular row or column of the table to a location within an area of the graphical user interface display;

means for establishing the row or column associated with the user-selected marker as a sort key having an intermediate position in the sort key order defined by the location within the area in response to the input gesture including maintaining the sort direction from the sort key order, and maintaining the positions and the sort directions of two or more remaining sort keys in the sort key order;

means for sorting the table of data according to the plurality of sort keys, the sort key order, and the sort key directions in response to the input gesture; and

means for displaying the sorted table of data, wherein displaying the sorted table of data includes displaying the table of data including the same plurality of rows or the plurality of columns where content of the table of data has been sorted.

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Evidence Appendix

None.

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Related Proceedings Appendix

None.